

GP-303778

FORMING TOOL APPARATUS
FOR HOT STRETCH-FORMING PROCESSES

ABSTRACT OF THE DISCLOSURE

A tooling assembly for hot stretch-forming of a sheet metal workpiece. A forming tool is attached to a plate and includes a shell having a forming surface, and support walls that extend away from the shell, that terminate in a rearward surface of the forming tool, and that define open cells between the support walls. Heating elements are embedded within the forming tool for integral and uniform heating thereof. To limit conductive thermal losses from the forming surface, through the forming tool, and to the plate and surrounding environment, the open cells are provided in the forming tool and insulative support posts are disposed between the forming tool and the plate within deep counterbores in the rearward surface of the forming tool. To limit radiative and convective thermal losses, thermal insulation is disposed within the cells and between the forming tool and plate.